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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/852,410	05/09/2001	Stepan Sokolov	SUN1P819	5391

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EXAMINER	
CHAVIS, JOHN Q	

ART UNIT	PAPER NUMBER
2124	

DATE MAILED: 10/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/852,410	SOKOLOV ET AL.	
	Examiner	Art Unit	
	John Chavis	2124	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06/21/04*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-8 and 10-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-8 and 10-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 6-21-04.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Arguments

1. Applicant's arguments filed 06/21/04 have been fully considered but they are not persuasive.

The applicant indicates that his invention provides for a Java heap that **may be** used used for storing Java objects with similar traits in a designated portion of memory. Steensgaard indicates that his system provides for heap sections **for each thread**, see the third paragraph of section 3. He indicates that the objects are Java objects in the last paragraph of section 1. Furthermore, if the applicant is correct (although the examiner is not aware of anything that verifies this) in his statement below that a thread can have multiple classes, then the statements above alone supports objects with similar traits. This is the case since each class would support similar objects (belonging to the same thread). Also, Steensgaard provides for large objects and small objects to be allocated separately (again having similar traits and in this case the trait is size), section 3.1. Steensgaard also indicates that shared objects can be reached without visiting thread specific objects (i.e. independently or without referencing) in the last paragraph of section 3.2 on page 20. Steensgaard also indicates in section 5 that a ***single*** **"shared"** heap section is used in his system, again for objects of similar traits. He further indicates in the last paragraph of section 6 on page 22 that it is possible to use "process specific heaps" and therefore, his thread specific heaps are considered to provide for the class specific heaps claimed.

The applicant argues that allocating objects in a section of a heap which is reserved for a thread, does not teach a Java heap portion that is designated to store

objects of a class and only objects of that class. He further indicates that a thread may use a plurality of classes; however, it is not clear where this information is provided. The applicant is hereby requested to provide a reference to indicate the statements above. A thread, as define in Microsoft Press Computer Dictionary is defined as a process (single – not multiple processes or classes) that is part of a larger process or program. Therefore, it is not clear what in this definition relates to multiple classes. Furthermore, a class can contain multiple classes; since, for example, in Java all classes are derived from the Object class and can contain other classes. Furthermore, the applicant should be aware that a class can contain multiple classes. For example, in Java, all classes are derived from the Object class (one class) and classes also contain a main class (two classes) and can also contain other subclasses (concrete and abstract classes).

Therefore, a class specific heap would effectively store objects for multiple classes. An inner class example from the Just Java 1.1 book is hereby provided as a further example. In the class, a heap for the Applet class would also have MyinnerBHClass associated with it.

A copy of the previous action, with modifications to support the current amendment is hereby provided below.

DETAILED ACTION

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 2-8, 10-26 are rejected under 35 U.S.C. 102(a) as being anticipated by Steensgaard.

CLAIMS:	Steensgaard
2. In a Java computing environment, a Java heap suitable for storing Java objects therein, wherein said Java heap comprises:	See the last paragraph of sect. 1.
at least one Java heap portion that is designated for storing Java objects with similar traits.	see the second paragraph of sect. 1.
~~2. A Java computing environment as recited in claim 1,~~ wherein said at least one Java heap portion is designated to ~~store objects of a class, and wherein~~ only objects of said class are stored in said at least one Java heap portion.	See again the 2nd para. of sect. 1, which indicates "objects can be allocated in a section of the heap ~~reserved for that thread~~" (i.e. in Java this refers to objects of a Class.
3. A Java computing environment as recited in claim 2, wherein said Java heap includes a plurality of Java heap portions, and wherein each of said plurality of Java heap portions is designated for storing Java objects with similar traits.	See again the 2nd para. of sect. 1, and the title of the invention "Thread Specific Heaps..." (i.e. with similar traits).
4. A Java computing environment as recited in claim 3, wherein each of said plurality of Java heap portions is designated to store objects of the same size.	See the first paragraph of sect. 3.1, with specific reference to the large and small objects.
5. A Java computing environment as recited in claim 2, wherein said at least one Java heap portion is	The chunks are considered equivalent to the applicant's array, see the second para. of sect. 3.1

implemented as an array.	And the third and fourth paras. Of sect. 3.2.
6. A Java computing environment as recited in claim 2, wherein said at least one Java heap portion is designated to store objects with similar life spans.	The threads indicates above are considered to have similar life spans.
7. A Java computing environment as recited in claim 2, wherein said at least one Java heap portion is designated to store objects of the same size.	See the rejection of claim 4.
8. A Java computing environment as recited in claim 2, wherein said at least one Java heap portion is designated to store objects that do not reference other objects.	The shared objects are considered to provide objects that do not reference other objects, see the 5th para. from the end of sect. 3.2 and The first para. of sect. 5, which indicates that "an independent thread (which do not reference other objects) or collection of (independent) threads can be isolated by a set of shared heaps. **The applicant should further note that a dependent thread would at least reference a parent object or the object that it depends on.**

In reference to claims 10 and 14-15, see the rejection of claim 1. The applicant should see again that Steensgaard's system references Java (i.e. bytecodes).

As per claims 11-12 and 18-20, see section 5, specifically paragraphs 1 and 6.

The features of claims 13 and 16 are taught via claim 2.

Claim 17 is taught via claim 4.

In reference to claims 21-26 are rejected as claim 1 above. Java commands are inherently translated at compile time unless an interpreter is used. Steensgaard's

section 2 indicates that compiler (which translates bytecode) support is provided for and therefore, translation is provided for.

Conclusion

4. Other references, although not specifically cited are considered pertinent to the applicant's disclosure. For example, US Patent 6480862 B1,
TITLE: Relation-based ordering of objects in an object heap indicates that

Managing available memory is critically important to the performance and reliability of a data processing system such as a computer. Specifically, data used by a computer program is typically stored in a computer within a memory that has a limited address space. In many computers, data is stored in the form of "objects" that are allocated space in a portion of the memory referred to as an "object heap". Objects also often include "references" (also known as pointers) to other objects so that a computer program can access information in one object by following a reference from another object. Typically each computer program has its own object heap, so if multiple computer programs are active in a computer, multiple object heaps may be maintained in the computer.

Furthermore, US-PAT-NO: 6363468 indicates that:

Systems and methods consistent with the present invention allocate memory of a memory array by partitioning the memory array into subheaps dedicated to frequently used memory blocks. To this end, the system collects memory statistics on memory usage patterns to determine memory block sizes most often used in the memory array. The system uses these statistics to partition the memory array into a main heap and at least one memory subheap. The system then allocates or deallocate memory of the memory array using the memory subheap. Furthermore, the system allocates memory

of the memory subheap only for memory blocks having one of the memory block sizes most often used in the memory array.

Also, the reference entitled "Smartheap Technical Specification..." is considered pertinent as indicated in PCT International Report provided.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Chavis whose telephone number is (703) 305-9665. The examiner can normally be reached on 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (703) 305-9662. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jqc
October 1, 2004

JOHN CHAVIS
PATENT EXAMINER
ART UNIT 2124